

ABSTRACT OF THE DISCLOSURE

A borderless contact structure and method of forming thereof are provided. A device isolation region having a protrusion is formed at a predetermined region of a semiconductor substrate. The top surface of the protrusion is higher in level than that of the semiconductor substrate. An impurity diffusion region is formed in an active region surrounded by the device isolation region. An etch stop spacer is formed on a sidewall of the protrusion. An etch stop layer and an interlayer insulating layer are sequentially formed on the resultant structure including the impurity diffusion region, the device isolation region and the etch stop spacer. A contact hole opening the interlayer insulating layer and the etch stop layer is formed to expose at least a portion of the impurity diffusion region. Accordingly, during the etching process for forming the borderless contact hole exposing both the impurity diffusion region and the device isolation region adjacent to the impurity diffusion region, the device isolation region adjacent to the impurity diffusion region is not recessed, thereby improving leakage current characteristics of the semiconductor device.